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APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
09/540,400	03/31/2000	Frans Lodewijk Plantenga	ACH2696	2198

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EXAMINER	
GRIFFIN, WALTER DEAN	
ART UNIT	PAPER NUMBER
1764	

DATE MAILED 01/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/540,400	PLANTENGA ET AL.
	Examiner	Art Unit
	Walter D. Griffin	1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 November 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *111703*
4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other .

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi et al. (US 5,468,709).

Applicants are claiming a process for reducing the sulfur content of a hydrocarbon feedstock to a value less than 200 ppm. Applicants' process comprises contacting the feed with a

catalyst comprising a Group VIII metal, a Group VIB metal, and an organic additive on a carrier. The dependent claims define specific organic additives.

The reference of Yamaguchi discloses a catalyst suitable for desulfurizing a hydrocarbon feed containing sulfur. See column 47, lines 45-55. The catalyst comprises a Group VIII metal (nickel or cobalt), a Group VIB metal (molybdenum), an additive, and a support. See column 4, lines 1-15 and 45-62. The reference teaches that suitable additives include ethylene glycol or a polysaccharide. See column 4, lines 50-54 and column 6, lines 12-24. Yamaguchi also discloses that the catalyst can be presulfided in situ. See column 9, lines 55-65.

The Yamaguchi reference succeeds in teaching the use of a catalyst for desulfurization of an oil with components corresponding to those claimed by applicants.

Several differences are noted between the reference of Yamaguchi and the claims. It is noted that the reference is silent about limiting the feed boiling point and sulfur content.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to treat any sulfur containing feed, including a feed with the specific boiling point and sulfur content claimed by applicants, by the process of Yamaguchi because it does not limit the specific types of sulfur containing oils. In the absence of unexpected results, it would appear that one of ordinary skill would be motivated to treat any oil with an undesirable level of sulfur according to the process of Yamaguchi including a feed with the sulfur contents in applicants' claims, since it is known to be effective for removing undesirable sulfur. Treatment of applicants' specific oil with specific starting sulfur amounts would yield a product with a sulfur content as defined in applicants' claims.

In addition, it is noted that the reference is silent about a second desulfurization step as defined in applicants' claim 8. However, applicants' second desulfurization step is considered to be a repetition of the first desulfurization of the first. It would have been obvious to one of ordinary skill in the art at the time the invention was made to repeat the desulfurization step of Yamaguchi because it is within the level of ordinary skill in the art to repeat a known processing step until a desired sulfur removal level is obtained.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0870817A1 in view of Yamaguchi et al. (US 5,468,709).

The EP reference discloses a two-stage desulfurization process for a hydrocarbon feedstock with a 95% boiling point of 450°C or less. See abstract, column 1, line 4. The catalyst comprises Group VI and VIII metals (e.g., nickel, cobalt, molybdenum). See page 2, lines 6-8 and 45-50. The catalyst can be employed in sulfided form (can be sulfided in situ). See page 2, lines 55-60. The process can involve two hydrogenation steps. See abstract, column 2, paragraph 2. The final product comprises less than 350 ppm sulfur.

The EP reference succeeds in disclosing a desulfurization process with steps, a feed, and Group VI/VIII catalyst sulfided catalyst corresponding to those claimed by applicants.

A difference is noted between the EP process and applicants' claimed process. The reference does not disclose the use of applicants' claimed additives.

The Yamaguchi reference is cited for the general teaching that applicants' claimed additives are known to increase the activity of Group VI/VIII desulfurization catalysts. See abstract and column 6, lines 10-45.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Group VI/VIII catalyst of the EP reference to include the additives defined in applicants' present claims because the Yamaguchi reference illustrates that such additives are known to increase the activity of Group VI/VIII desulfurization catalysts. One of ordinary skill in the art desiring increased desulfurization would be motivated to include applicants' additives.

Response to Arguments

The argument that a skilled person would read the Yamaguchi reference in the context of its background and would recognize that the reference relates to catalysts suitable for effecting conventional HDS because this was the only HDS process known at the time is not persuasive. Nowhere does Yamaguchi disclose that the catalyst is effective only for conventional HDS processes. In fact, Yamaguchi discloses in column 1, lines 38-42 that it has been noticed that the conventionally prepared catalysts cannot satisfactorily meet an ever growing demand on reducing the levels of sulfur and nitrogen compounds in the heavy oils or the like. Therefore, Yamaguchi does not consider the disclosed catalysts to be conventional and suggests that deeper desulfurization and denitrogenation can be achieved through the use of the catalyst in a hydrotreating process. Because it appears as if the Yamaguchi process is not drawn to a conventional HDS, the Platenga declaration filed on November 13, 2003 is also not persuasive. It is certainly not clear that the claimed ultra-deep HDS is any different from the HDS disclosed by Yamaguchi.

The argument that the only metals illustrated by Yamaguchi are cobalt and molybdenum and that the present invention requires nickel and molybdenum is not persuasive. Yamaguchi discloses that nickel or cobalt is preferably chosen as the Group VIII metal. See column 5, lines 7-14.

The argument that there would be no expectation of success in combining the EP and Yamaguchi references is not persuasive. Yamaguchi teaches that the activity of Group VI/VIII metal catalysts is increased with the inclusion of organic additives in the catalyst. Therefore, the examiner maintains that one having ordinary skill in the art would add the organic additives to the catalysts of the EP reference with the expectation of increased activity.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter D. Griffin whose telephone number is (571) 272-1447. The examiner can normally be reached on Monday-Friday 6:30 to 4:00 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

Walter D. Griffin
Primary Examiner
Art Unit 1764

WG
January 20, 2004